

Claim 23 has been amended substantially in the manner discussed in the personal interview, with some modifications to address the formal concerns raised in the interview and to amplify the load transmission characteristics of the claimed traction drive. It was noted in the Interview Summary that the language of the amended claim appears to define over the art of record.

As amended, claim 23 recites a traction drive for an elevator system, the elevator system including a car and a counterweight. The traction drive includes at least one tension member, each of which interconnects the car and counterweight, and a traction sheave over which the tension member passes. The tension member includes a polyurethane coating encasing a load carrying rope, has an engagement surface defined on the polyurethane coating, and has an aspect ratio (width to thickness) of greater than one. The traction sheave includes a traction surface configured to receive the engagement surface of the tension member between take-up and take-off points on either side of the traction sheave such that traction between the traction surface of the sheave and the tension member in a region between the take-up and take-off points is transmitted through the polyurethane coating to the load carrying rope and moves the car and counterweight.

As discussed at the personal interview, according to Applicants' understanding GB '283 does not disclose or suggest the claimed traction drive or traction sheave. Rather, GB '283 is understood to disclose a winding drum, with separate ropes (one winding while the other unwinds) for the elevator cage and counterweight.

In the art, the terms "traction drive" and "traction sheave" denote a drive in which lifting ropes are driven by friction with the sheave. See, for example, the definition of "traction drive lift" in the 1985 and 1998 versions of EN 81-1, the definition section of the European standards for elevator construction and installation, and the definition of "traction machine" in the 1971 and 1997 versions of A17.1c, from the US counterpart standard, excerpts attached as Appendix A. In contrast, a winding drum is well known in the art to be a positive drive mechanism, in which the ropes are driven by means other than friction. See, for example, the definitions of "positive drive lift (includes drum drive)" in EN 81-1 and "winding drum machine" in A17.1c.

In addition to the presentation in GB '283 of the disclosed double flat rope rotor winder as an improvement over the drum winder illustrated in Fig. 1 of GB '283, several other factors lead to the conclusion that GB '283 discloses a winding drum. Not only is each device repeatedly referred to as a "drum" (which in itself connotes a drum winder rather than a traction sheave), but the drums are disclosed as being clutched and geared or coupled together (page 1, line 44; page 2, lines 14-19). According to Applicants' understanding, this would indicate that the drums are being used to simultaneously wind cage and unwind counterweight ropes, or vice versa. In the arrangement shown in Figs. 4, 5 and 6 of GB '283, it is Applicants' understanding that each hoist comprises two coaxial drums, one each for the cage and counterweight ropes, which is consistent with the indication at lines 43-47 of page 2 that a minimum of two and a maximum of four motors would be required.

Thus, as discussed at the personal interview, Applicants submit that GB '283 does not disclose or suggest at least the features recited in independent claim 23 regarding at least one tension member, each of which interconnects the car and counterweight.

As a further indication that the disclosure relates to a drum winder, Fig. 2 of GB '283 shows high flanges at either end of the drum, which would seem to indicate that the rope would accumulate on the drum. As noted in the Office Action, the rope tracks 13 are not helical. However, according to Applicants' understanding, a flat rope of any length could not be accumulated helically, because the angle of wrap could not be reversed without kinking the rope. Thus, in order to wind a flat rope, the rope would stack on itself as it accumulated on the drum. Applicants note that the traditional rope winding drum shown in Fig. 1 of GB '283 also has flanges, although somewhat lower by comparison to Fig. 2 because the round rope will not be stacking directly on itself. In contrast, as discussed in the interview, Applicants also note that Fig. 10 of GB 2134209 A (which is of record, and has the same assignee, inventor and agent as GB '283) shows no high end flanges. Although that figure does not show a traction sheave either, it does show a "Koepe" winder with toothed drive wheel on which the rope is not accumulated.

Applicants further believe that the disclosure in GB '283 that treads can be provided on *either or both* sides of the rope (e.g., page 2, line 29-33) also indicates that

the arrangement is a winding drum. If the treads were provided for traction with the drum, the treads would only be beneficial on the side of the rope that contacts the drum. However, the treads are provided on either the drum-contact side, the opposite side, or both sides in order to increase the rope pressure, apparently to improve the rope's clamp on itself in stacked arrangement.

Additionally, Applicants again note the disclosure at page 2, lines 58-59, of GB '283 that grease is retained inside the rubber-like covering. Such an arrangement would completely undermine the rope's utility in a traction-drive arrangement, because it would destroy the torque capability between the covering and the rope. Thus, the arrangement in GB '283 would appear to require the end of the elevator-suspending rope be affixed to a drum on which the rope is wound. In any case, it seems clear that such a rope could not transmit the traction (between the traction surface of the sheave and the tension member in a region between the take-up and take-off points) through the polyurethane coating to the load carrying rope, which traction moves the car and counterweight.

Thus, as discussed at the personal interview, GB '283 also does not disclose or suggest at least such claimed features as the tension member's passing over traction sheave or a traction surface configured to receive the engagement surface of the tension member between take-up and take-off points on either side of the traction sheave such that traction between the traction surface of the sheave and the tension member in a region between the take-up and take-off points is transmitted through the polyurethane coating to the load carrying rope and moves the car and counterweight.

Wilcox, which is cited for its disclosure regarding a polyurethane coating, does not overcome the above-noted differences in the teachings of GB '283.

Accordingly, independent claim 23 patentably defines the invention over the cited art. Applicants request withdrawal the rejection of independent claim 23 based on §103.

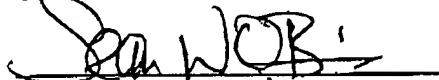
The dependent claims recite features in addition to those set forth in the various independent claims, and are submitted to be allowable for the foregoing reasons and in their own right. Further independent consideration of the dependent claims is requested.

Applicants submit this application to be in condition for allowance and request a notice thereof.

Please charge any additional fees or credit overpayment to Deposit Account No. 15-0750, Order No. OT-4190A.

Respectfully submitted,

Baranda et al.


Sean W. O'Brien
Registration No. 37,689

Otis Elevator Company
Ten Farm Springs
Farmington, CT 06032
(860) 676-5760